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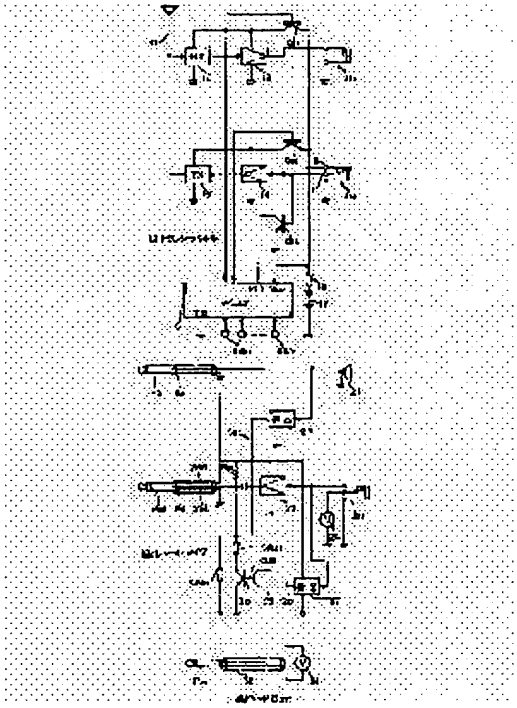
(54) TRANSMITTER-RECEIVER

(57)Abstract:

PURPOSE: To output the voice of an opposite party from a speaker in the transmitter-receiver having a VOX function.

CONSTITUTION: The transmitter-receiver is provided with a reception circuit 12 receiving a radio wave from an opposite equipment to provide the output of a voice signal from an opposite party, and a speaker 21 receiving the voice signal from the opposite party and outputting the voice signal, and a transmission circuit 15 sending its own voice signal from the microphone 31 to the opposite equipment, and also with a detection circuit 27 detecting the presence of a signal outputted from the microphone 31 and a detection circuit 23 detecting the presence of a signal fed to the speaker 21. When the detection circuit 27 detects the presence of the signal from the microphone 31, the transmission mode is set as the operation mode based on the detection output. When the detection circuit 23 detects the presence of the signal to be fed to the speaker 21, the reception mode is selected for the operation mode indepnedently of the detection output of the detection circuit 27 based on the detection output.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the transmitter-receiver which has a VOX function.
[0002]
[Description of the Prior Art] There is a specific smallness power transceiver as a transceiver of the simple form which can be used for a message, communication, etc. This specific smallness power transceiver has unnecessary procedure, such as license, and rating or an application. And while nine channels are prepared as an object for a message, any channel is to be used among the nine channels. Moreover, the distance in which the communication is possible is [in a city area] about 1-2km about 100-200m and in a skiing area.
[0003] Therefore, anyone can use this specific smallness power transceiver freely by outdoor leisure etc.

[0004] Moreover, although there are simplex operation and both ****** in a specific smallness power transceiver as a product, there is a VOX function as one of the functions in the transceiver of simplex operation. the receive mode [a transceiver] when this VOX function does not have voice input in a microphone during use of a transceiver -- **** -- although it is, when voice input is in a microphone, only the period of that voice is the function in which a transceiver becomes a transmitting mode automatically.
[0005] Therefore, even if it is simplex operation, the transceiver which carried the VOX function can be transmitted and received by being handsfree, is outdoor leisure etc. and can be used conveniently.
[0006]
[Problem(s) to be Solved by the Invention] By the way, when preparing a VOX function in a transceiver, he is trying for the voice which received to also hear a lug using headphone, an earphone, etc. This is because the voice which received is collected by the microphone, a VOX function will work and a transceiver will become a transmitting mode with the collected voice (voice which received), if it is not made such.
[0007] However, covering long time amount and hearing the voice outputted from headphone or an earphone will give a user a feeling of fatigue, and displeasure. Moreover, since it will be heard that it is also a lug while the voice of people unrelated to a communication partner will also be able to be heard, when conditions, such as a channel, are the same, displeasure will be given further.
[0008] This invention tends to solve such a trouble.
[0009]
[Means for Solving the Problem] For this reason, in this invention, if the reference mark of each part is made to correspond to the below-mentioned example The receiving circuit 12 which receives the electric wave from a phase hand loom, and outputs the sound signal from a partner, The loudspeaker 21 which the sound signal from a partner is supplied and outputs the voice, The microphone 31 (or 24) which collects its voice, and the sending circuit 15 which transmits its sound signal to a phase hand loom, [from this microphone 31] The system control circuit 16 which switches the mode of operation of a

receiving circuit 12 and a sending circuit 15 to the receive mode and a transmitting mode, The 1st detector 27 which detects the existence of the signal outputted from a microphone 31, and the 2nd detector 23 which detects the existence of the signal supplied to a loudspeaker 21 are formed. and when the 1st detector 27 detects existence of the signal from a microphone 31 When the mode of operation of a receiving circuit 12 and a sending circuit 15 is switched to a transmitting mode and the 2nd detector 23 detects existence of the signal which should be supplied to a loudspeaker 21 with the detection output, with the detection output Irrespective of the detection output of the 1st detector 27, the mode of operation of a receiving circuit 12 and a sending circuit 15 is switched to the receive mode.
[0010]
[Function] When the sound signal from a partner is supplied to the loudspeaker 21, priority is given over transmission of its voice and it is fixed to the receive mode.
[0011]
[Example] In drawing 1 and drawing 2 , in 10, the body of a specific smallness power transceiver and 20 show a receiver microphone (loudspeaker microphone), and 30 shows a head set.
[0012] And in the body 10 of a transceiver, the receiving circuit where a transceiver antenna and 12 have from a RF tuning circuit to FM demodulator circuit in 11, and 13 are the low frequency amplifier for reception. Moreover, the output jack which takes out the sound signal which J11 received, and J12 are the input jacks (the so-called stereo jack) of three contacts to which the sound signal for transmission is supplied, and L and R are the contact by the side of hot.
[0013] Furthermore, the low frequency amplifier for transmission in 14, the sending circuit where 15 has from FM modulation circuit to transmitting amplifier, the microcomputer for system controls in 16, the cell for power sources in 17, and 18 are the actuation switches of various kinds [11 / electric power switch and / SW].
[0014] And in this example, when switching the mode of operation of the body 10 of a transceiver to the receive mode or a transmitting mode, it has realized by carrying out on-off control of the operating voltage to which this is supplied by circuits 12-15. For this reason, while the series connection of between the emitter collectors of the transistors Q11 and Q12 for a switch is carried out between a cell 17 and power-source Rhine of circuits 12 and 13 and circuits 14 and 15, the base of these transistors Q11 and Q12 is connected to a microcomputer 16, and on-off control of the transistors Q11 and Q12 is carried out to it.
[0015] Moreover, it is the transistor which detects control of transmission and reception, while the base is connected to the contact L of a jack J12, when the collector is connected to a microcomputer 16 and on-off control of the transistor Q13 is carried out, this is detected by the microcomputer 16, and Q13 becomes a transmitting mode at the time of the receive mode and OFF, when a transistor Q13 is ON.
[0016] Furthermore, in the receiver microphone 20, as for the loudspeaker which outputs the voice of the partner whom 21 received, and 22, a connecting cord and P21 are plugs, and this plug P21 is connected to the jack J11 of the body 10 of a transceiver at the time of use. Moreover, the detecting signal S23 which this is for detecting the existence of the sound signal which should be supplied to a loudspeaker 21, 23 is a detector, it is set to "L" when for this reason it connects with a loudspeaker 21 and there is that sound signal, and serves as "H" when there is nothing is taken out.
[0017] Moreover, as for the microphone which collects its voice, and 25, microphone amplifier, the input jack for [26] external microphones in the connecting cord of the 3 hearts and J21, and P22 are the output plugs (the so-called stereo plug) of three contacts. [by whom 24 is transmitted] This plug P22 is inserted in a jack J12 at the time of use, and the contacts L and R of a jack J12 are then connected to the codes 26L and 26R of a code 26 through the contact of a plug P22, respectively.
[0018] Furthermore, the detecting signal S27 which this detector 27 is for realizing a VOX function, 27 is a detector, serves as "H" when there is a sound signal which this detector 27 is connected to the input edge of amplifier 25, and is transmitted for this reason, and is set to "L" when there is nothing is outputted.
[0019] And detecting signals S23 and S27 are supplied to AND circuit 28, the ANDO output S28 is supplied to the base of the transistor Q21 for VOX control, and the collector is connected to code 26L of

a code 26 through the VOX switch SW21. Furthermore, the PTT switch SW22 is connected to code 26L. In addition, a switch SW21 is used as the on/off switch of a lock type, and a switch SW22 is a non lock type, and let it be a normally open push switch.
[0020] Moreover, the electrical potential difference of a cell 17 can be obtained from code 26R of the codes 26, and this electrical potential difference is supplied to circuits 23, 25, and 27 as that operating voltage so that it may mention later. In addition, pull-up of the code 26L is carried out through the pull-up resistor machine R21.
[0021] Furthermore, in a head set 30, as for the microphone with which 31 collects the voice for transmission, and 32, a connecting cord and P31 are output plugs, and this is connected to a jack J21.
[0022] Drawing 3 A shows an example of the appearance of an above-mentioned specific smallness power transceiver, and drawing 3 B shows an example of the busy condition.
[0023] And in drawing 3 A, the whole is mostly constituted by the rectangular parallelepiped and, as for the body 10 of a transceiver, the plugs P21 and P22 of the receiver microphone 20 are inserted in the jacks J11 and J12 (not shown). In addition, in this example, plugs P21 and P22 are summarized to one, and codes 22 and 26 are also summarized to one.
[0024] Furthermore, in the head set 30, the band 33 which has the shape of the shape of U character and a C character, and has elasticity is formed, and the microphone 31 is attached in this through the flexible arm 34. And in this drawing 3 A, the plug P31 of a head set 30 is inserted in the jack J21 of the receiver microphone 20.
[0025] And as shown for example, in drawing 3 B at the time of use of this transceiver, it is put into the body 10 (broken-line illustration) of a transceiver by the pocket of dress etc., and the clip stop of the receiver microphone 20 is carried out to the collar of dress etc. Moreover, while a band 33 is set to the head, as for a head set 30, an arm 34 is adjusted so that a microphone 31 may also become opening with the neighborhood.
[0026] According to such a configuration, while the electrical potential difference of a cell 17 is supplied to circuits 23, 25, and 27 as those operating voltage through Rhine of code 26R of the contact R-> plug P22 -> codes 26 of a jack J12, it is supplied to code 26L as an electrical potential difference for the pull-up through a resistor R21.
[0027] And when switches SW21 and SW22 are OFF, while pull-up of the code 26L is carried out through a resistor R21 and it is "H" level, this "H" level is supplied to the base of a transistor Q13 through Rhine of the contact L of the code 26L-> plug P22 -> jack J12. Therefore, when switches SW21 and SW22 are OFF, while a transistor Q13 is ON, this is distinguished in a microcomputer 16 and let the body 10 of a transceiver be the receive mode.
[0028] And in this receive mode, while a transistor Q11 is set to ON with a microcomputer 16, the electrical potential difference from a cell 17 is supplied to circuits 12 and 13 and circuits 12 and 13 are made into operating state, it is supposed that a transistor Q12 is off and operating voltage is not supplied to circuits 14 and 15.
[0029] Therefore, if the electric wave from a phase hand loom is received by the antenna 11, the sound signal from that phase hand loom is outputted from a receiving circuit 12, this sound signal will be supplied to a loudspeaker 21 through the signal line of the amplifier 13 -> jack J11 -> plug P21 -> code 22, and a partner's voice will be outputted from a loudspeaker 21.
[0030] However, since this "L" level will be supplied to the base of a transistor Q13 while code 26L is set to "L" level if the PTT switch SW22 is pushed and it turns ON, a transistor Q13 becomes off, and this is distinguished in a microcomputer 16, and let the body 10 of a transceiver be a transmitting mode.
[0031] And in this transmitting mode, while it is supposed with a microcomputer 16 that a transistor Q11 is off and the operating voltage of circuits 12 and 13 is no longer supplied, a transistor Q12 is set to ON, the electrical potential difference from a cell 17 is supplied to circuits 14 and 15, and circuits 14 and 15 are made into operating state.
[0032] Then, if the user of this transceiver talks, that voice will be collected by the microphone 31 and that sound signal will be supplied to amplifier 14 through the signal line of the contact L of the microphone 31 -> code 32 -> plug P31 -> jack J21 -> amplifier 25 -> code 26L-> plug P22 -> jack J12.

Therefore, the sound signal collected by the microphone 31 is transmitted.
[0033] In this way, when the VOX switch SW21 is OFF, reception or transmission can be performed by operating the PTT switch SW22.
[0034] In addition, when the plug P31 is not inserted in the jack J21, the sound signal from a microphone 24 is supplied to amplifier 25 through the switch contact of a jack J21. Therefore, it will talk over the telephone mainly by having the receiver microphone 20 in a hand in this case.
[0035] Furthermore, a VOX function is performed when the VOX switch SW21 is ON. That is, since a sound signal is not outputted from a microphone 31 (or 24) when the user of this transceiver is not talking, it is S27= "L", and irrespective of a signal S23, the output signal S27 of a detector 27 is S28= "L", and the transistor Q21 is off [the output signal]. Therefore, code 26L is "H" level, and since a transistor Q13 is ON, if a transceiver is in the receive mode and there is voice from a partner, this will be outputted from a loudspeaker 21.
[0036] However, if the user of this transceiver talks, a sound will be collected by the microphone 31 (or 24), and that voice will serve as S27="H". And if the partner of a message is speaking about nothing at this time, since the sound signal from a partner is not supplied to a loudspeaker 21, the output signal S23 of a detector 23 is S23="H".
[0037] Therefore, since code 26L is set to "L" level since it becomes S28="H" and a transistor Q21 serves as ON in this case, consequently a transistor Q13 becomes off, a transceiver serves as a transmitting mode. Therefore, the sound signal of the voice collected by the microphone 31 is transmitted.
[0038] In this way, when the VOX switch SW21 is ON, a VOX function is performed and it can talk over the telephone by being handsfree.
[0039] However, since the voice from a partner is outputted from a loudspeaker 21 in this case, as mentioned above, the voice from this loudspeaker 21 should be collected by the microphone 31 (or 24), a VOX function should work, and it should become a transmitting mode.
[0040] However, in this invention, if there is voice from a partner, while that sound signal will be supplied to a loudspeaker 21, it is detected in a detector 23 and becomes S23= "L." Therefore, since it is still S28= "L" even if a sound is collected by the microphone 31 (or 24) and the voice (a partner's voice) from a loudspeaker 21 serves as S27="H", a transistor Q21 is still off and a transistor Q13 is still ON. Therefore, the receive mode is held, even if the voice from a partner is outputted from a loudspeaker 21 and this voice is collected by the microphone 31 (or 24).
[0041] In this way, according to this transceiver, when a VOX function is enabled, the receive mode is held, even if a partner's voice is outputted from a loudspeaker 21 and collected by the microphone 31 (or 24). And if it talks here when a message of a partner finishes, a sound will be collected by the microphone 31 (or 24), and the voice here will switch to a transmitting mode automatically, and will be transmitted to a partner.
[0042] Therefore, since a partner's voice can be outputted from a loudspeaker 21, a feeling of fatigue and displeasure like [at the time] can be abolished. [earphone / headphone or] Moreover, when conditions, such as a channel, are the same, the voice of people unrelated to a communication partner will be able to be heard, and since this cannot hear a lug, either, displeasure can be reduced also from this point.
[0043] Furthermore, when the electric wave from a phase hand loom is detected and it supplies the audible tone signal which shows this to a loudspeaker 21, even if the audible tone is outputted from a loudspeaker 21, the receive mode is held and does not switch to a transmitting mode.
[0044] In addition, in ****, although the receive mode was held when a detector 23 was established in the receiver microphone 20 and a partner's voice was outputted from a loudspeaker 21 according to the detecting signal S23, a detector 23 can be established in the body 10 of a transceiver, and same actuation can be carried out by the detecting signal S23.
[0045]
[Effect of the Invention] According to this invention, when a VOX function is enabled, the receive mode is held, even if a partner's voice is outputted from a loudspeaker 21 and collected by the microphone 31

(or 24). And if it talks here when a message of a partner finishes, a sound will be collected by the microphone 31 (or 24), and the voice here will switch to a transmitting mode automatically, and will be transmitted to a partner.

[0046] Therefore, since a partner's voice can be outputted from a loudspeaker 21, a feeling of fatigue and displeasure like [at the time] can be abolished. [earphone / headphone or] Moreover, when conditions, such as a channel, are the same, the voice of people unrelated to a communication partner will be able to be heard, and since this cannot hear a lug, either, displeasure can be reduced also from this point.

[0047] Furthermore, when the electric wave from a phase hand loom is detected and it supplies the audible tone signal which shows this to a loudspeaker 21, even if the audible tone is outputted from a loudspeaker 21, the receive mode is held and does not switch to a transmitting mode.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the connection diagram showing a part of example of this invention.
[Drawing 2] It is the connection diagram showing an example of a continuation of drawing 1 .
[Drawing 3] It is drawing showing the appearance and busy condition of an example of this invention.
[Description of Notations]
10 Body of Transceiver
12 Receiving Circuit
15 Sending Circuit
16 Microcomputer
20 Receiver Microphone
21 Loudspeaker
23 Detector
24 Microphone
27 Detector
28 AND Circuit
30 Head Set
31 Microphone
J11 Output jack
J12 Input jack
J21 Input jack
P21 Input plug
P22 Output plug
P31 Output plug
SW21 VOX switch
SW22 PTT switch

[Translation done.]

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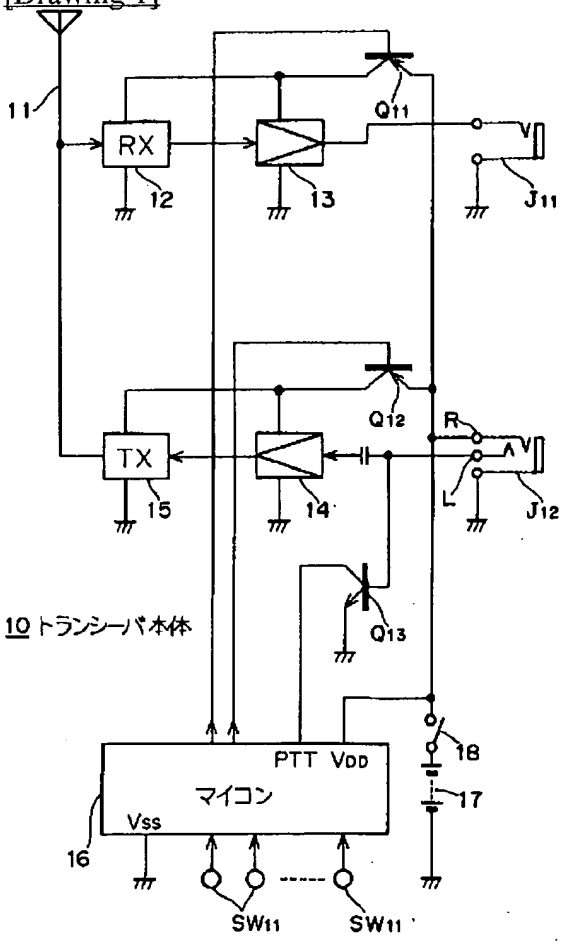
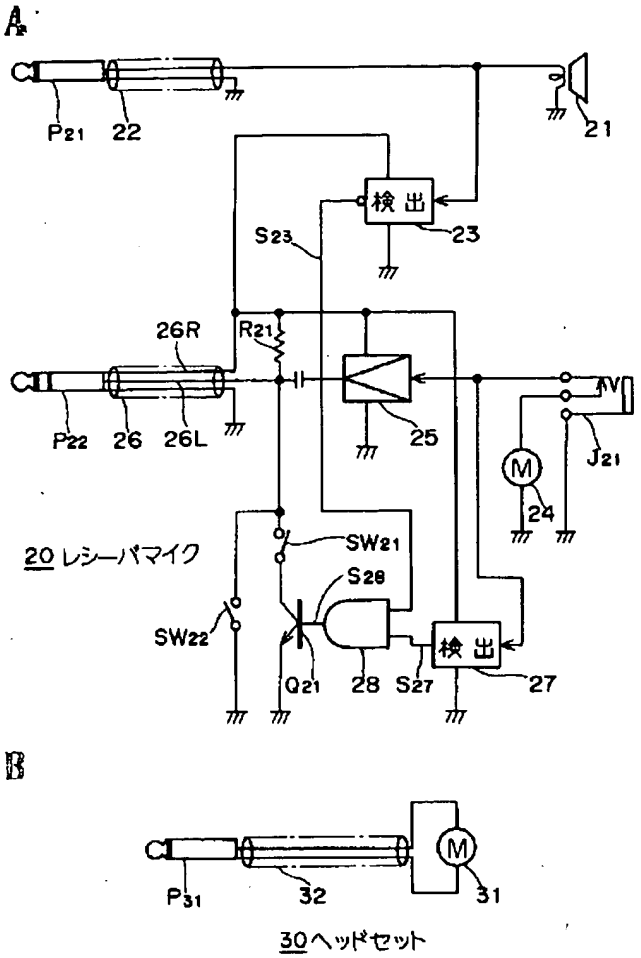
DRAWINGS

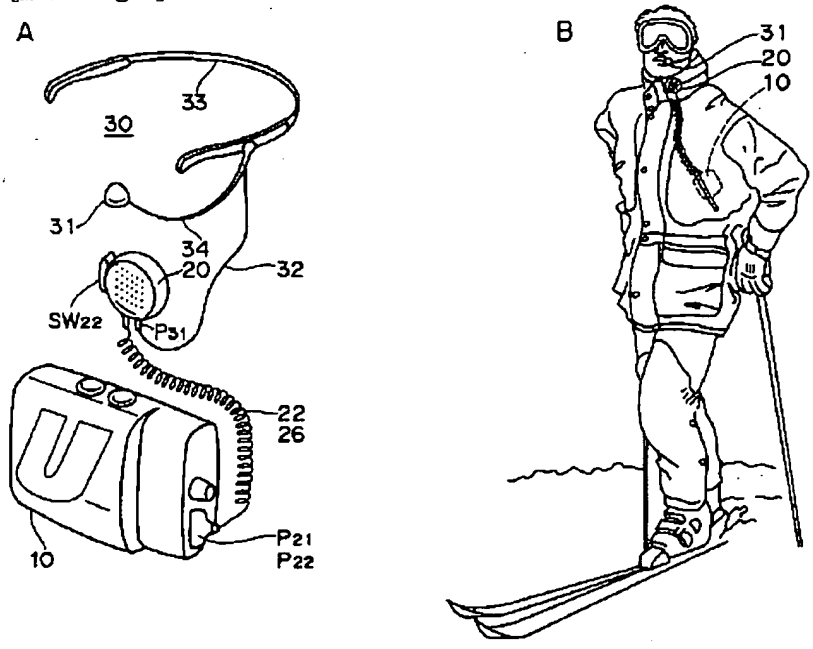
[Drawing 1]



[Drawing 2]



[Drawing 3]



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